United States
Department of
Agriculture

Economic
Research
Service

Foreign Agricultural
Economic Report
Number 189

Venezuela: A Prospective Market for Grain and Livestock Products

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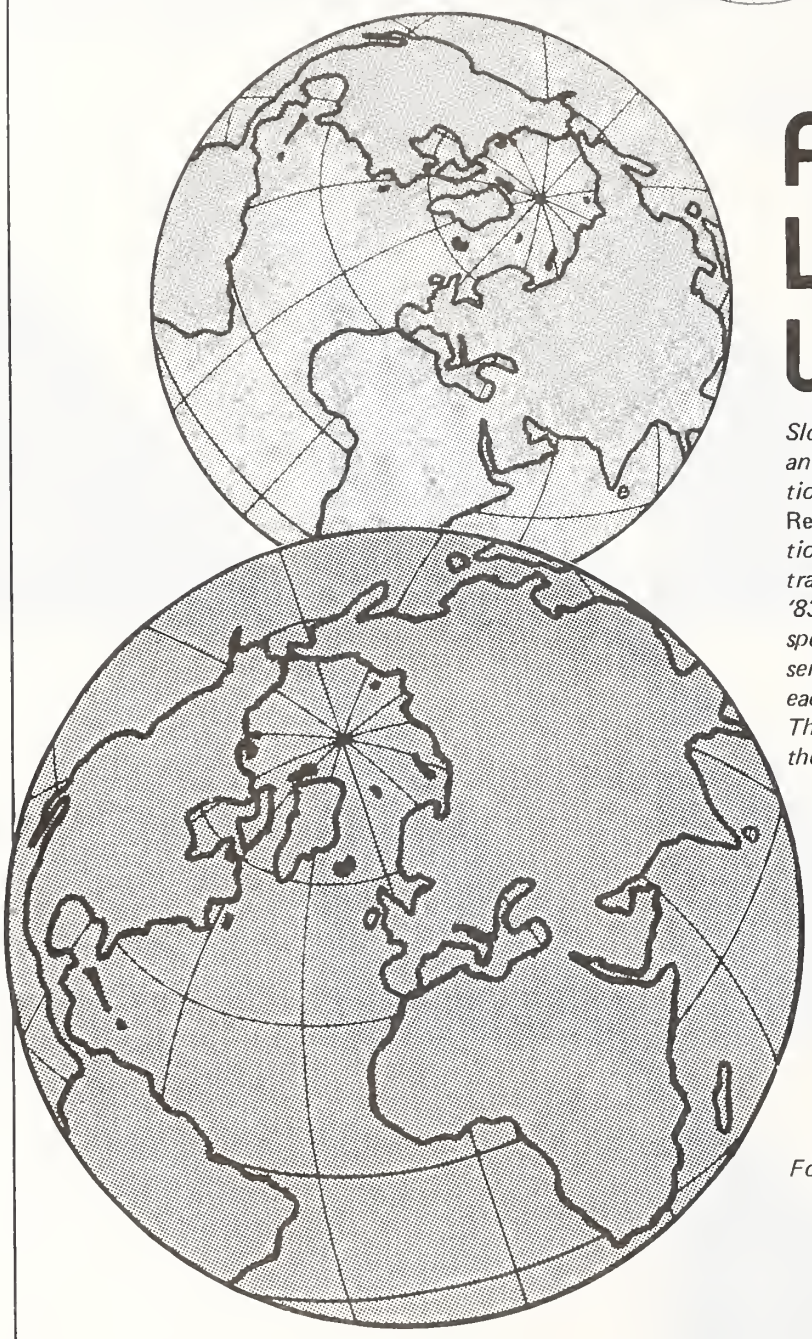

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VENEZUELA: A PROSPECTIVE MARKET FOR GRAIN AND LIVESTOCK PRODUCTS. By L. Jay Atkinson, as abridged and edited by Oswald P. Blaich, International Economics Division, Economic Research Service, U.S. Department of Agriculture. Foreign Agricultural Economic Report No. 189.

ABSTRACT

Venezuela must rely on agricultural imports to satisfy its increased consumption needs, despite an accelerated agricultural program following the 1973 boom in oil revenues. The grain-livestock sector continues to depend on imports of feed grains and other raw materials. The United States is the largest supplier of farm products to Venezuela (with a value soon to reach $1 billion), but the U.S. market share varies considerably from year to year. Projections of production and consumption indicate continued growth in Venezuela's imports of feed grains through 1990 and moderate growth in livestock.

Keywords: Venezuela, grain, livestock, production, consumption, imports

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Washington, D.C. 20250 September 1983

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ACKNOWLEDGMENTS

This report is based on a study conducted by the late L. Jay Atkinson under contract with the Economic Research Service. 1/ Mr. Atkinson wished to acknowledge the help of many people in collecting data and preparing his report. He was especially indebted to the officials in the Venezuelan Ministry of Environment and Renewable Resources who made available their preliminary projections of the demand for food products. Several people at the Central Bank of Venezuela provided advice on the the adjustment of disposable national income to reflect the demand for food more reliably. The agricultural attaché in Caracas, George Dietz, and his staff also provided useful assistance. Wade Gregory and Paul Trapido commented on an earlier draft.

Mr. Atkinson was an agricultural economist with the Foreign Demand and Competition Division, Economic Research Service, U.S. Department of Agriculture, from 1966 until his retirement in 1977. He died in April 1983.

1/ Detailed references, sources, data, and methodology associated with the Atkinson study can be reviewed in the Economic Research Service, U.S. Department of Agriculture, Room 302, 500 12th St., S.W., Washington, D.C. 20250.

SUMMARY

Venezuela must rely on agricultural imports to satisfy its increased consumption needs and to support its grain-livestock sector, despite an accelerated agricultural investment program begun in 1974. With imports dominated by wheat, feed grains, and oilseeds and their products, Venezuela will shortly join the few countries that import $1 billion or more of farm products from the United States. Market growth is the result of a rapid increase in population, a substantial rise in income spurred by oil revenues, and the failure of Venezuela's agriculture to keep pace with demand.

Extensive Government outlays have boosted livestock production sufficiently to satisfy much of the demand. However, the country's capacity to produce the feed needed to support its livestock industry has lagged, requiring increased feed imports primarily from the United States. This study concentrates on developments not only in the production of livestock but also in the production of rice, grain sorghum, and corn as these affect the volume and composition of trade in farm products.

An annual growth rate of just under 3 percent in population, added to a modest growth in incomes, will assure sustained expansion of meat and livestock product demand through 1990. Demand will probably be met largely from domestic production. New developments in breeding, feeding, and managing dairy herds are likely to assure continued self-sufficiency in fluid milk, but not in cheese, butter, and other manufactured products. Increases in beef production will be slow. Consumption needs could be satisfied by imports or. with appropriate import controls, could lead to higher domestic prices.

The production of livestock and livestock products will continue to depend principally on feed grain imports. Much of the potential for yield increases in sorghum has already been exhausted, so that further growth in output must be relegated largely to expanding onto marginal lands or onto lands now used for corn or rice. Either option will increase costs of production and may exceed the costs for imported feed grains.

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Oswald P. Blaich

INTRODUCTION

Venezuela was an important focus for U.S. agricultural market development activities during the seventies when a rapid growth in oil revenues made it one of the hottest prospects in the world for the expansion of U.S. farm product exports.

The study upon which this report is based was commissioned to provide information to the U.S. Department of Agriculture, its market development cooperators, and private traders on Venezuela's farm sector and its prospects. Particular interest was directed to the country's potential for producing livestock, which in turn would create a demand for corn, sorghum, and soybean meal which the United States supplies.

The original study examines the basic technical and economic relations underlying the crop and livestock sector and speculates on how these might change to influence trade. This report summarizes and highlights these findings, and it projects the prospects for trade to 1990.

BACKGROUND

Venezuela's market for farm production has grown rapidly. Food imports, less than 700 million bolivars (Bs) in the sixties, rose to nearly Bs 6 billion by the early eighties. 1/

An accelerated agricultural investment program began in 1974, resulting from expanded oil receipts. Agriculture received high priority, with the goal of import substitution and self-sufficiency in products adapted to Venezuela's own natural resources. The program provided credit for both short-term and longer term investment; provided subsidies on inputs such as fertilizer, certified seed, and chemical pesticides; and encouraged imports of improved breeds of livestock and poultry.

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* Atkinson was an agricultural economic consultant working under contract to the Economic Research Service (ERS) of the U.S. Department of Agriculture. Blaich is an agricultural economist with ERS.

1/ This is at the pre-1983 exchange rate of 4.3 bolivars for $1 U.S.

In spite of these efforts, agricultural output generally grew at only a slightly higher rate from 1973 to 1978 than before, although preliminary reports of expansions in grain area and yield suggest that the rate of progress may be increasing. In 1980, bad weather masked any evidence of further gains.

The total gross domestic product (GDP) rose faster after the 1973 oil price rise. Industry and manufacturing growth increased from a 5.5-percent annual rate to 6.4 percent, while total GDP increased from 4.9 percent to 6.4 percent (table 1). In 1978 and 1979, the growth of GDP slowed somewhat, as the Government applied tight credit and monetary controls to restrain inflation. Growth in GDP, which had risen 9 percent in 1977, declined to 5.5 percent in 1978 and to 3.7 percent in 1979. Although inflation did not slow, considerable improvement occurred in the country's international financial position through this period.

During the past 8-10 years, the entire economy increased its dependence on imports, not only machinery and production goods but also consumer goods and food. In 1971, imports totaled 15 percent of a GDP of Bs 52 billion. By the end of the decade, imports had reached 30 percent of the nearly Bs 170 billion of real GDP.

U.S. agriculture has been a substantial beneficiary of this rapidly growing market. Imports from the United States were nearly Bs 500 million by 1970 and increased to more than Bs 2 billion by 1979. As long as its oil revenues are sustained, Venezuela is expected to remain an important market for U.S. farm products. By 1981, its food imports from all sources amounted to more than Bs 6 billion. At the current exchange rate, this amount represents $1.4 billion, of which the U.S. share was $900 million.

Table 1--Selected economic indicators, 1971-81

Year	Gross domestic product	Population	Real per capita GDP 1/	Imports as percentage of GDP
	Billion Bs	Million	1,000 Bs	Percent
1971	52.0	12.1	3.6	15
1973	63.1	12.8	3.7	14
1975	127.7	13.6	4.0	18
1977	132.5	14.5	4.7	25
1979	168.8	15.4	4.9	27
1981	171.4	16.0	4.8	30

1/ In constant 1973 bolivars (Bs).

The value of food imports, as a proportion of total imports, changed little during the seventies, holding between 8 and 11 percent per year (table 2). However, the growth of food imports increased almost sixfold, stimulated by the largest rise in income and purchasing power of any previous decade. In fact, in 1974, food imports had strained the capacity of Venezuela's port facilities. During much of the decade, the U.S. share of farm product trade fell; in 1977, it turned around and by 1981 was again near 70 percent, where it had been in 1971.

TRENDS IN AGRICULTURE

Venezuelan agriculture has been growing since 1950 (table 3). In the fifties, agricultural output increased about 6 percent annually, while the overall economy grew at more than 8 percent. During the sixties and seventies, both growth rates slowed, yet remained at healthy levels. Agricultural growth lagged the general economy during most of the 1950-80 period, despite accelerated public investment. However, the growth rate for livestock and livestock products generally kept pace with that for the overall economy as many modern poultry and hog enterprises were established. The slow average growth rate for agriculture was due to the limited response of the

Table 2--Food and total imports, selected years, 1971-81

Year	Total imports	Food imports	Food as percentage of total	U.S. share of food imports
	--- Billion Bs ---		--- Percent ---	
1971	8.3	0.5	8.4	71
1973	10.9	.7	11.0	58
1975	22.8	1.2	9.7	55
1977	38.6	1.3	10.6	32
1979	46.0	2.1	11.3	40
1981	52.0	3.9	11.0	68

Table 3--Gross national product and agricultural growth, annually, 1950-78

Period	GNP	Agriculture	Crops	Livestock
		Percent		
1950-58	8.4	6.0	5.5	7.9
1958-68	6.0	5.8	3.6	8.8
1968-78	5.6	4.0	3.2	5.6

crop sector and, during the seventies, to frequent poor weather.

Production Trends

Much of the country's farming was modernized during the sixties and seventies. A rapid conversion to mechanical power took place as the urban migration of farm people reduced the number of farmworkers. Improved varieties, fertilization, weed and pest control, and yield-increasing soil and water management were also introduced. These innovations laid the foundation for improving agricultural productivity, but were not sufficient to meet the surge in demand for feed by the rapidly developing livestock industry.

During the early seventies, crop production grew slowly, averaging only 1.2 percent. However, this period included 3 years of poor weather. Beginning in 1977, good weather supported the trend to modernization and expanded both area and yield, particularly in corn, rice, and grain sorghum. Not all of the area increase came from new acreage; some was at the expense of oilseeds, sesame seed, and cotton. Yields increased despite some expansion onto moderately unproductive soils at the edges of the Los Llanos Plains.

Total fertilizer use more than doubled during the 4 years ending in 1977; it continued to expand until 1980 when it reached 0.5 million metric tons (mmt). About 20 percent of the area in crops is now fertilized. The amount of irrigated land was also increased, particularly for rice production.

The net result of these improvements was that rice production increased enough to reduce domestic prices to near world levels and to provide for all domestic needs. Corn production increased enough to allow limited growth in imports. Sorghum production, mainly for animal feed, increased from virtually zero in 1970 to nearly 700,000 metric tons (mt) by the end of the seventies (table 4).

Table 4--Production and imports of grains, 1971-81

Year	Rice		Wheat		Corn		Sorghum	
	Production	Imports	Production	Imports	Production	Imports	Production	Imports
	1,000 metric tons							
1971	113	1	1	596	713	105	2	330
1973	302	--	1	546	454	350	8	402
1975	363	--	1	732	653	132	70	466
1977	514	41	1	731	774	505	291	450
1979	653	--	1	NA	884	435	430	480
1981	681	--	1	891	452	739	364	750

-- = Zero.
NA = Not available.

Prospects for the expansion of corn, which is used for both food and feed, looked bleak until 1977. Both yield and area harvested had increased little. But, some progress became evident; production rose until 1980 when bad weather necessitated a sharp increase in imports to meet local needs.

Pork and broiler production sustained excellent growth rates (table 5). Feed supplies for both were available from domestic production and imports. Pork and broilers are produced with modern technology, and both are protected by tariffs and import controls.

Beef and milk production has expanded slowly because of limited pasture availability and the lack of technological progress to improve efficiency and grazing capacity. Beef prices were held down for consumers and up for producers. However, producer supports were not high enough to support investment in production improvement. Beef prices were, in fact, held only to levels that would minimize illegal imports from across the unguarded borders with Colombia. However, prices have recently been advanced, and efforts to control imports have been made.

Food Prices and Policies

The Government intervenes in agriculture in many ways, including import controls, producer incentives, and subsidized prices to consumers. A single marketing agency (CMA) has had the conflicting responsibility of supporting farm prices and holding down the consumer cost of food.

The Government has controlled agricultural prices for many years. In 1973, there were price supports for five commodities: corn, rice, sorghum, sisal, and cotton. In 1974 and 1975, these supports were extended to 19 additional products.

Table 5--Meat production, 1971-81

Year	Total 1/	Beef	Pork	Poultry
	1,000 metric tons			
1971	359	214	41	95
1973	421	225	67	118
1975	492	268	71	148
1977	571	274	72	194
1979	624	312	105	191
1981	662	541	77	244

1/ Includes minor meats not listed.

World agricultural prices began a prolonged rise in 1972. Venezuelan agricultural prices had previously been generally below world prices. The 1971 index of wholesale agricultural prices equalled that in 1968 (table 6). Agricultural prices have since risen somewhat faster than the index of all prices, but even when the general price index slowed in 1976, farm prices continued to advance.

The Government restrained retail food prices during the 1973-81 inflationary period as part of a general price-control program. Thus, despite continued sharp pressures from increases in incomes, domestic retail food prices rose less in the midseventies than did world prices. After food prices were decontrolled in 1979, they rose more rapidly and have more than caught up with world food price increases.

Venezuela is highly dependent on food imports despite a proclaimed import substitution policy as far back as 1958. This general policy is still pursued, but with less vigor. During the initial decade of import substitution, agricultural production expanded greatly. The real value of output rose by more than 175 percent or at an average annual rate of 5.8 percent (table 7). Two-thirds of the expansion was in grains, oilseeds, and cotton; corn nearly doubled, and rice, roots, and tubers expanded significantly. Traditional export crops--coffee, cacao, and sugar--expanded less. Livestock and livestock products responded to higher prices with a sustained rise in output during these early years, averaging around 6 percent.

Despite production growth, shortages of some foods persisted through the sixties and seventies. With high prices on imported foods, consumers began to substitute among home-produced products. However, this practice simply resulted in occasional shortages of those products as well. The Government tried to stabilize supplies by stimulating home

Table 6--Price indexes, 1971-81

Year	General prices	Agricultural prices		
		All products	Livestock	Crops
		1968 = 100		
1971	104	100	102	99
1973	115	118	107	124
1975	153	154	152	155
1977	189	208	197	214
1979	221	244	223	255
1981	286	NA	NA	NA

NA = Not available.

Table 7--Value added in agricultural production, selected years, 1958-78

Year	Real value added 1/	Annual growth rate
	Billion Bs	Percent
1958	1.6	NA
1968	2.8	5.8
1978	4.7	5.5

NA = Not available.
1/ Constant 1957 Bs.

production even more. This policy called for tighter controls on imports, higher producer prices, and input subsidies. However, to curb inflation and provide lower food costs to consumers, the Government introduced price and margin controls at wholesale and retail levels, and it absorbed the loss. Even so, food prices rose more than the general price level, but extreme inflation was avoided.

In August 1979, some products were freed from controls. Although current policy continues to stress import substitution, some actions seem to contradict it; namely, the Government's budget for agriculture in 1978, 1979, and 1980 was reduced 20-25 percent from the preceding 3 years.

GRAIN-LIVESTOCK PROSPECTS

The grain-livestock subsector accounts for more than half of all agricultural production. Despite the sector's moderate growth, the need for imports grows. The leading products--corn, sorghum, oilseeds, beef, and milk--are products for which demand has risen rapidly, spurred by expanding income and population.

Meat production doubled through the seventies. Each type of meat registered advances; but beef production grew only moderately, whereas pork and chicken output doubled.

Such a sustained rise in output has been achieved by few nations. An important question is: Can Venezuela sustain this growth? A growth rate of nearly 6 percent would keep pace with future growth in the demand for meat if population continues to expand at 3 percent per year and if per capita disposable real income remains at about 3 percent per year. But, if incomes grow faster, the demand for meat cannot be met from local production without some increases in real prices.

Feed Prospects

The prospects for increasing the output of livestock depends on the availability of feed--imported or home-produced. The production of rice and corn can be expanded to enable some

import substitution. This change will require increases in the imports of fertilizers, pesticides, herbicides, some machinery, and seed. It will also require an increase in corn price supports because the current levels are not high enough to stimulate increases much above those that have already occurred.

Rice production has nearly exceeded domestic market needs. If producer support prices continue above the world price, Venezuela could easily produce an exportable surplus. However, exports would not be possible without export subsidies and without a considerable effort to develop foreign markets.

An increase in grain sorghum production appears more promising than does an expansion in corn, because grain sorghum yields are higher and production costs are lower. Considerable land is available that is either too wet or too dry to meet the more exacting requirements for corn; this land is better suited to the more tolerant needs of grain sorghum.

The program for expanding grain sorghum has been one of the more successful agricultural ventures in recent years. Within about 5 years, production rose from an insignificant level to an estimated 596,000 mt. This amount represented about half the feed grain needed in 1980. These production increases have occurred mostly on large mechanized farms, which provide more flexibility to adjust resource use from one commodity to another than do small farms that tie up a large portion of their resources in subsistence food production.

Most sorghum expansion began in 1976 after the support price had been raised from Bs 700 per mt the previous year to Bs 800 per mt. The Government made a special effort to obtain improved seed from abroad and to provide credit to finance purchases of seed, fertilizer, and other production inputs. Feed compounders worked mainly with large farmers to promote the expansion program. In return, the feed compounders got assured supplies of grain sorghum at prices below the imported cost and nearly one-third less than the cost of domestic corn.

Sorghum production expanded principally in four States: Monagas, Barinas, Guarico, and Portuguesa. These States had 90 percent of national production in 1975. Except for Portuguesa, they are located at the edges of the Llanos where agro-climatic conditions are less favorable for corn. Expansion in sorghum production is so recent and in such an early stage of development that further expansion possibilities are not easy to assess. Some of the increase has been achieved by the addition of new land, and the rest at the expense of other crops.

As indicated, small farmers did not participate in the national grain sorghum expansion program. The production techniques promoted were best suited to large-scale operations. Thus, only 10 percent of the increased sorghum

production was on farms harvesting 40 hectares or less, and 65 percent was on farms of 100 hectares or more.

Corn has always dominated agriculture in Venezuela. About 70 percent of all farmers produce corn on about 500,000 hectares. This represents about 30 percent of the harvested area for all crops. Over 90 percent of the farmers have less than 5 hectares of corn and produce about 40 percent of the total crop.

Corn yields have not improved much over the years. For two decades prior to 1976, yields hung at just over 1.0 mt per hectare. Since then, yields of 1.5 mt per hectare have been reported, and despite bad weather in 1980, yields averaged nearly 1.3 mt per hectare. About one-fourth of the total corn area is fertilized, whereas insecticides are used on about one-third and herbicides on about one-sixth.

Large farms, particularly in Yaracuy and Portuguesa, use more fertilizer on corn than do small farms. In Portuguesa, about two-thirds of the corn area was fertilized; and in Yaracuy, Cojedes, Lara, Guarico, and Aragua, fertilizer was applied to about half the area. In other areas where small farms abound, very little fertilizer was used.

Despite this modest progress in corn production, some agronomists suggest that new lands should be expanded to other crops as much of the farming area of Venezuela is ill-suited to corn. Corn varieties from developed countries do not transfer well so that special research is needed to adapt these varieties to local conditions. Such research has been underway for several years; although promising new varieties are being bred, none can be released soon.

Little progress has been made in the production of high-protein supplements needed for poultry and pork production. About two-thirds of the oilseeds needed to produce poultry and pork have been imported--mainly soybeans from the United States. The remainder has been derived from locally produced cotton and sesame seed. The Government has paid little attention to this segment of production.

Beef and Dairy Technology

The number of cattle on farms has been increasing about 2 percent annually, with beef production rising at about twice that rate. If this improvement in efficiency continues, only a minor void will need to be filled by imports or by expanded domestic pork and broiler output.

Most of the increased efficiency in beef production occurred outside the traditional Llanos ranching area from dual purpose herds in the area around the southern end of Lake Maracaibo. There the rainy season is longer and feed supplies are more plentiful for much of the year.

Past advances in beef production may be exaggerated because of illegal imports from Colombia. There has been considerable

criticism of this traffic in both countries. Colombia would prefer to stop the movement of yearlings, feeder cattle, and slaughter stock and to ship dressed carcasses instead. Venezuela would like to eliminate the depressing effect these illegal movements have on its beef prices.

A primary factor limiting future cattle and beef expansion is the limit to pasture area and yield. Cultivated pasture area has increased about 5 percent annually since 1950 and now constitutes 6 million hectares in a total pasture area of 16.6 million hectares (table 8).

A few estimates illustrate the low level of productivity. The annual calving rate per cow is only 35 percent, with a 15-percent annual mortality rate for calves and a 7-percent rate for other animals. These data suggest that barely enough heifers reach maturity to provide the minimum 15 percent needed just to maintain the breeding herd. Thus, any significant growth in the basic herd has to come from legal or illegal imports of breeding stock or from improvements in husbandry.

The annual slaughter rate averages about 12 percent. In general, 5 or 6 years are required to bring animals to a carcass weight of about 200 kilos. This slow gain is consistent with the low input levels associated with traditional practices on large ranches and with the low amount of forage available during the long dry season.

Any significant improvements in beef production will take a long time as responses to incentives and improved practices tend to be slow. Prior to 1975, cattle prices were relatively low, but they have subsequently risen more than other prices. Despite this rise, production has not improved significantly. The various systems for providing more feed during the dry season, such as haying, ensiling, supplementary feeding,

Table 8--Area in pasture, selected years, 1950-77

Year	Pasture area		
	Cultivated grasses 1/	Natural grass	Total
	Million hectares		
1950	1.6	11.8	13.4
1961	2.8	11.8	14.6
1972	4.8	11.5	16.3
1977	6.0	10.6	16.6

1/ One hectare of cultivated grasses is considered to equal approximately 3 hectares of native grass pasture for cattle grazing.

growing crops for pasture or forage in the dry season, and supplemental irrigating were not profitable when cattle prices were low; they still are not, even though cattle prices are higher now.

Until the major increase in milk support prices in 1979, the ratio of milk to feed prices was not favorable for feeding grain. Now that milk prices have been raised to about Bs 90 per hundredweight and feed grain prices have remained relatively unchanged, it is profitable to feed grain in some circumstances. Dairy specialists at the University of Central Venezuela at Maracay point out, however, that new production systems are needed to avoid using large amounts of feed concentrates, as is the standard practice in many developed countries. Venezuela also needs to develop dairy breeds or crosses that are adapted to the local climate and to develop pasture-forage management systems that counter the sharp drops in nutrient availability during the dry season.

Some breakthroughs are possible. A private effort has already led to production systems which have increased milk production from an annual average of 800 liters per cow to 1,800 liters, with some as high as 3,200 liters. The best production has come from Holstein and Brown Swiss crossed with Creole cattle when they are fed year-round on a silage of corn, sorghum, and hay mixed with protein concentrates.

A second hope emerges from attempts to transfer dairy cattle with high production potential to more temperate climates at altitudes of 2,500 feet or more. This effort includes forage improvement programs in which pastures are seeded with white clover, red clover, alfalfa, and grasses from temperate regions. Some of this forage is dehydrated, pelletized, and supplemented with vitamins and minerals to produce off-season feed. Holstein, Brown Swiss, and Creole cows do well in the temperate climates. Planners expect to obtain 3,000 liters per cow per year compared with a national average of 800 liters. If these dairy herds can be expanded to 120,000 cows, as planned, they would provide a total of 360 million liters per year; this is equivalent to one-third of the current national output of milk.

It is unclear whether these dairy efforts can eventually compete with imports. In 1980, the domestic subsidy of Bs 110 per mt cost the Government Bs 5.4 million for the 49,000 additional mt of dry whole milk that was produced under this program. This amount compares with a total cost of Bs 1.8 million that was paid to subsidize 85,000 mt of dry whole milk that was imported.

Pork and Poultry Technology

The trend toward modernization and expansion of the pork and poultry industries contrasts sharply with traditional beef and dairy production. Broiler production expanded fastest because the technology was readily transferable from the United States and could be applied with little modification. Pork technology, by contrast, had to be adapted through local

research, which took time. Even so, substantial increases were achieved with large, modern piggeries operated under hygienic conditions, scientific feeding, and veterinary supervision.

Occasional imports of pork, poultry meat, and eggs are allowed to enter duty free to restrain sharp seasonal price advances. But, most of the future pork and poultry needs are likely to be met from local production. The technology has been worked out, the capital requirements are not very great per unit of output, the firms are large, and production is efficient.

IMPORT DEMAND, 1985 AND 1990

Economic planning in the eighties is expected to continue emphasizing agriculture and food expansion. The goal of self-sufficiency will continue to be reserved for products suited to the ecological conditions of Venezuela. The pace was set after 1974 when, despite great emphasis on using petroleum revenues to establish heavy industry, agriculture was not ignored. Sufficient funds for agricultural development are still expected to be available.

The major forces driving demand in the eighties will be an expected population growth rate of just under 3 percent per year and an expansion in per capita income of nearly 30 percent from 1980 to 1985 and an additional 15 percent in the following 5 years (table 9). There is little disagreement about population growth, but some sources suggest that predictions of income growth, particularly in the near term, may be optimistic.

The rate of population growth declined from an annual rate of over 4 percent during the fifties to about 3.15 percent in the midseventies. This rate is estimated to decline again, to 3.0 percent in 1982 and to 2.58 percent by 1990. The population in 1990 will be somewhat less than 21 million, representing a 54-percent rise from 1975.

In 1980, a new agricultural policy was announced. The 5-year plan for 1981-85 includes higher production goals supported by increased agricultural credit, expanded storage capacity, deregulated food prices at retail, reduced duties on many imported foods, and producer incentive prices for some

Table 9--Income and population, 1976-79 average, and projections to 1985 and 1990

Item	Unit	Average 1976-79	1985	1990
Population	Million	14.5	18.4	21.0
GDP	Billion Bs	90.4	148.4	196.5
GDP/capita	Bs	6,134.0	8,082.0	9,369.0

products. Although intentions and results are not always the same, the following projections reflect some of the plan's optimism.

Grains

Total grain production should continue to increase through modest increases in area, particularly rice and sorghum, and persistent growth in yields (table 10). However, these production gains will not be sufficient to close the growing gap created by growth in demand. Production will expand mainly in feed grains to meet as much as possible the needs of the thriving hog and poultry industries. However, food uses will also expand somewhat. The overall level of self-sufficiency will remain at or below 50 percent, while total import requirements will expand by about 1 mmt by 1990.

The demand projections assume that, for direct human consumption, demand will shift from cassava and other root crops to corn and from corn to wheat. These predictions reflect the trend toward urbanization and a differential response to moderately rising incomes. Per capita consumption of corn for food use may continue to decline gradually, whereas wheat consumption is expected to rise fast enough to more than offset this trend and so lift total grain consumption--mainly wheat and rice. Rice is the only food grain for which consumption is likely to be met by domestic production. A large portion of corn and practically all wheat will continue to be imported.

Venezuela's foreign exchange earnings are likely to be sufficient so that imports of white corn and wheat for food will not need to be restricted. The Government has discussed substituting rice flour for some of the wheat flour, which is technically possible. Substitutions of up to 15 percent can be made without appreciable effect on baking quality. Agricultural policymakers' statements generally imply that rice cannot enter world markets without some subsidy and

Table 10--Grains: Production, consumption, and imports, 1977-79, and projections to 1985 and 1990

Item	Actual			Projected	
	1977	1978	1979	1985	1990
	1,000 metric tons				
Production	1,400	1,518	1,826	2,068	2,378
Consumption	3,115	3,149	3,516	4,366	5,197
Imports	1,715	1,631	1,690	2,298	2,818
	Percent				
Self-sufficiency	45	48	52	47	46

without a substantial market development effort that may be more costly than it is worth.

The principal feed grain used for both hogs and poultry is sorghum. Sorghum's expansion is projected to continue, but at a slower rate of increase than in the seventies. Thus, it is almost certain that imports of grain for feed are likely to grow either in the form of sorghum or corn, depending on price.

No significant expansion is projected for domestic production of high-protein supplements needed to balance poultry and hog rations. Therefore, imports of meal, or of soybeans for producing meal, are expected to rise to meet the growing demand. Venezuela has no comparative advantage for expanding oilseed production with its present technology. To do so significantly, the Government would have to increase price supports on oilseeds substantially and engage in a costly expansion program.

Red Meats

The production of red meats is likely to expand primarily through increases in pork output. Some slackening in the rate of increase in red meat consumption is anticipated in the next 5 years as relative prices rise and as poultry becomes cheaper (table 11). However, imports are expected to gain in importance after 1985 as the limits of available pasture land become more binding and domestic prices rise even higher. Beef production will continue to grow, but there is little evidence of any major managerial or technological breakthroughs by 1985, or even by 1990. Even if there were, the process of expanding beef herds is slow, and it is unlikely to have much impact in this decade.

A significant expansion in pork production is far more likely. The availability of concentrate feed is a limiting factor, but it can be imported at reasonable cost. Pork production can adjust fairly readily to varying rates of

Table 11--Red meats: Production, consumption, and imports, 1977-79, and projections to 1985 and 1990

Item	Actual			Projected	
	1977	1978	1979	1985	1990
	1,000 metric tons				
Production	369	382	401	476	537
Consumption	422	404	425	546	663
Imports	53	22	24	70	126
	Percent				
Self-sufficiency	87	95	94	89	81

expansion in pork consumption; capital and labor requirements for large piggery systems are relatively low and can be expanded or contracted with minor changes in incentives.

Pork consumption has been increasing despite moderate increases in relative pork prices. However, the amount consumed is still very low--only about one-fourth that of beef. This factor suggests a strong market could be developed for imported products if consumer attitudes toward pork could be changed.

Projections suggest an underlying trend toward a 10-percent or so rate of decline in self-sufficiency in red meat production. This change will tend to raise consumer prices for pork and encourage imports. However, it could also lead to modest import controls if foreign exchange becomes an issue.

Poultry Meat

As with most countries where modern broiler operations are established, the production of poultry meat will likely keep pace with increases in demand. The self-sufficiency ratio is projected to continue near 90 percent, allowing for continued modest imports of poultry parts to meet seasonal peak demands (table 12). However the self-sufficiency ratio could approach 100 percent with better management of feed imports and with the construction of efficient cold-storage facilities.

The modern broiler industry has developed so recently and the increases have been so large that current trends can not be projected directly. Consumption in 1975 was 147,700 mt and by 1979 had already reached 235,000 mt. In 1980, it was only slightly lower. But, even if an annual rate of 6 percent is applied to this base, consumption would be 365,000 mt by 1990 with some poultry substituting for beef, pork, and other meats.

Dairy Products

The production of dairy products could increase 50 percent or more in the next decade as some of the current herd and

Table 12--Poultry meat: Production, consumption, and imports, 1977-79, and projections to 1985 and 1990

Item	Actual			Projected	
	1977	1978	1979	1985	1990
	1,000 metric tons				
Production	194	188	211	264	330
Consumption	200	211	235	294	365
Imports	6	23	24	30	35
	Percent				
Self-sufficiency	97	89	90	90	90

pasture improvements take hold (table 13). This development will likely produce a sufficient milk output to meet the fresh demand, but far from enough to meet that for cheeses, nonfat dry milk, and other manufactured dairy products. The latter will continue to be imported at levels consistent with those of the late seventies--somewhat over 100,000 mt per year.

A NOTE ON THE PROJECTIONS

These projections are partly a product of analysis and partly a product of judgment. They result from observations of agricultural developments dating back to 1950. Fitting formal trend lines to those time series was generally not appropriate. The degree of fit was usually unacceptable and, furthermore, many of the influences of the seventies are not likely to be repeated in the eighties.

The demand projections were based on a consideration of population and income growth. These and the coefficients relating them to consumption were developed by the Venezuelan Ministry of Agriculture in a detailed study that was not published, but that was made available to the author. Underlying the Ministry projections was a population growth rate of 2.6 percent from 1982 through 1990 and a 6.5-percent nominal growth rate in per capita income for the same period. The latter is considered somewhat optimistic.

Projections of production for major commodities take into account the possibility of expanding the agricultural resource base as well as the assumption that some of the current technological developments will be adopted by farmers in this decade.

A final adjustment was made when the supply and demand estimates were considered together as regards their implications for external trade. When internal price relationships did not correspond with expected Venezuelan policy or with expected world prices, some minor adjustments were made to production, consumption, and trade.

Table 13--Dairy products: Production, consumption, and imports, 1977-79, and projections to 1985 and 1990

Item	Actual			Projected	
	1977	1978	1979	1985	1990
	1,000 metric tons				
Production	96	111	132	155	198
Consumption	207	224	205	266	316
Imports	111	113	73	111	118
	Percent				
Self-sufficiency	46	50	90	58	63

Japan to Increase Imports of U.S. Grains and Meats

"I am impressed with the quality and thoroughness of this work. It represents a real contribution to our understanding of Japanese agriculture."
Fred Sanderson, Guest Scholar, Brookings Institution.

Japan has long been one of the most important markets for U.S. agricultural exports, especially grains and oilseeds. A new report by USDA's Economic Research Service, *Japan's Feed-Livestock Economy: Prospects for the 1980's,* helps explain why that has been so and why future farm exports to Japan will probably rise even higher.

Each year, Japan purchases about 20 percent of total U.S. corn exports, 50 percent of U.S. sorghum exports, and more than 20 percent of U.S. soybean exports. By 1990, the United States may be able to increase its grain and soybean exports by a third and quintuple its beef exports, according to William Coyle, author of the report. In contrast, the Japanese market for imported dairy products, pork, and poultry will show little or no growth. The United States provides more than 65 percent of Japan's imports of coarse grains (corn, barley, sorghum), 95 percent of its soybean imports, and 71 percent of its soybean meal imports.

The report includes extensive tables and charts on Japanese consumption, production, and trade of beef, dairy, poultry, fish, and feed grains. It also includes two sets of consumption projections through 1990 for each commodity, one projection by the Japanese government and one by ERS.

See box below for ordering information.

Ag Subsidies Pressure EC Budget

Japan's Feed-Livestock Economy: Prospects for the 1980's; $5.00; 80 pages; GPO stock no. 001-000-04316-1.

Developments in the Common Agricultural Policy of the European Community; $5.50; 80 pages; GPO stock no. 001-000-04271-8.

Sweden's Agricultural Policy; $4.25; 40 pages; GPO stock no. 001-000-04300-5.

Available from Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Make your check or money order payable to Superintendent of Documents. For faster service, call GPO's order desk at (202) 783-3238 and charge your purchase to your VISA, MasterCard, or GPO Deposit Account. Bulk discounts available.

The European Community may have to reduce its agricultural support programs and export subsidies in order to avert a budget crisis, according to a report by USDA's Economic Research Service. Those reductions ought to make U.S. exports more competitive.

Developments in the Common Agricultural Policy of the European Community examines how the EC's farm program (CAP) may evolve, indicates potential price levels in various European countries, and assesses the implications for trade with the U.S. and other countries.

Sweden, although not a member of the EC, is also reducing its farm programs and farm expenditures. *Sweden's Agricultural Policy,* also published by ERS, is the only report available in English to describe recent changes in Sweden's agricultural policies and programs, including the major provisions of Sweden's 1982-84 farm program.

Two of the major changes dealt with in the report are Sweden's reduced government subsidies for agricultural exports (a major aim of U.S. world trade policy) and its changes in import levies for beef and pork.

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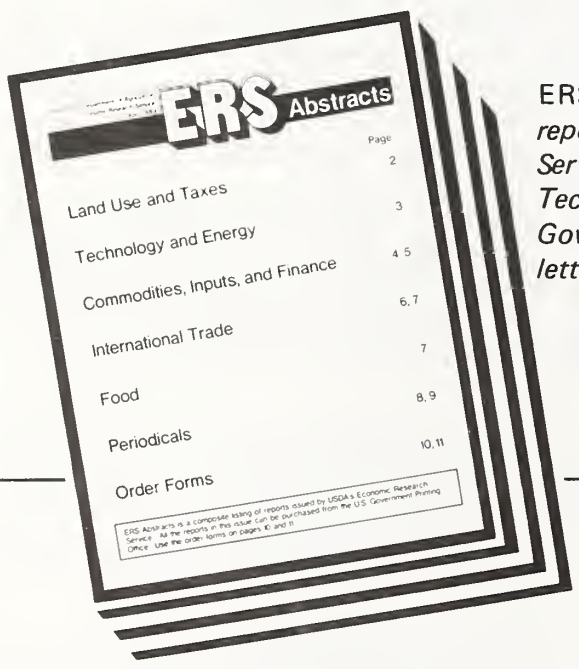

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